

**Claims**

1. An on-line healthcare system by using a domestic medical device, the on-line healthcare system comprising:

5       a portable measurement unit for performing a biological measurement for diagnosing a user's health and converting measured data so as to generate biological measurement information data and/or measurement information data including the biological measurement data; and

10       a cradle connected to the portable measurement unit so as to automatically transmit/receive the measurement information data to/from the portable measurement unit by means of a program stored therein.

15       2. The on-line healthcare system as claimed in claim 1, further comprising a server connected to a communication network and including a database for storing measurement information data, the measurement information data being classified by collecting and analyzing the measurement  
20       information data transferred from the cradle.

25       3. The on-line healthcare system as claimed in claim 2, further comprising an emergency server having an emergency address capable of providing highly-reliable communication if an analysis of the biological measurement data results in an emergency situation.

4. The on-line healthcare system as claimed in claim 2 or 3, further comprising a medical center allowing a medical specialist to transfer diagnosis information about the measurement information data to the server or the emergency server by using the measurement information data received from the server or the emergency server.

5. The on-line healthcare system as claimed in claim 2 or 3, wherein the cradle automatically transmits or receives the measurement information data and the diagnosis information to or from the server by a predetermined time interval.

6. The on-line healthcare system as claimed in claim 2 or 3, wherein the cradle automatically transmits or receives the measurement information data and the diagnosis information to or from the server immediately after the portable measurement unit is coupled with the cradle.

7. The on-line healthcare system as claimed in claim 2 or 3, wherein the server or the emergency server is managed in such a manner that a distribution server firstly receives the measurement information data from the cradle and secondly transfers the measurement information data to a central server.

8. The on-line healthcare system as claimed in claim 2

or 3, wherein a clock in the cradle is synchronized with a clock of the server or the emergency server.

9. The on-line healthcare system as claimed in claim 2  
5 or 3, wherein the cradle makes communication with the server or the emergency server by using dual tone multi-frequency (DTMF).

10. The on-line healthcare system as claimed in claim  
10 1, wherein the biological measurement includes at least one selected from the group consisting of blood sugar measurement, pulse measurement, blood pressure measurement, body fat analysis, respiration measurement, electrocardiogram measurement, SpO<sub>2</sub> measurement, brain wave  
15 measurement, blood analysis, and urine analysis.

11. The on-line healthcare system as claimed in claim  
1, wherein the measurement information data includes at least a part or all of the biological measurement data, a  
20 measurement time of the biological measurement data, an ID of the portable measurement unit, and an ID of a user.

12. The on-line healthcare system as claimed in claim  
1, wherein the portable measurement unit includes a first  
25 connection unit connected to the cradle, a first central processing unit for storing, analyzing, or processing data and/or an interface part for inputting data or displaying

data.

13. The on-line healthcare system as claimed in claim 12, wherein the first connection unit includes a first communication module for transmitting/receiving information using a first communication port of the portable measurement unit, or the first communication port of the portable measurement unit and wired/wireless communication.

14. The on-line healthcare system as claimed in claim 12, wherein the data includes at least one selected from the group consisting of the measurement information data, indication data for indicating whether or not new data exist, range indication data for indicating a range of the new data, and error data.

15. The on-line healthcare system as claimed in claim 14, wherein the data further includes an emergency address of a server or an address of an emergency server allowing the portable measurement unit to directly transfer an emergency signal in case of emergency.

16. The on-line healthcare system as claimed in claim 12, wherein the first central processing unit performs a measurement operation by using a signal processing module having a measurement program for the measurement operation, and controls a data storage part in such a manner that the

measurement information data are stored in the data storage part.

17. The on-line healthcare system as claimed in claim  
5 12, wherein the interface part includes a speaker or a  
warning light unit allowing the portable measurement unit to  
generate a warning light, a warning sound, and a warning  
message if an analysis result of the biological measurement  
data measured by the portable measurement unit determines  
10 that an emergency occurs.

18. The on-line healthcare system as claimed in claim  
1, wherein the cradle includes a second connection unit  
connected to the portable measurement unit or the server  
15 and/or a second central processing unit for processing,  
analyzing, or storing data.

19. The on-line healthcare system as claimed in claim  
18, wherein the connection unit includes a second  
20 communication module for transmitting/receiving information  
using a second communication port of the cradle or the  
second communication port and wired/wireless communication.

20. The on-line healthcare system as claimed in claim  
25 18, wherein the data includes at least one selected from the  
group consisting of the measurement information data,  
environment data, indication data for indicating whether or

not new data exist, range indication data for indicating a range of the new data, and error data.

21. The on-line healthcare system as claimed in claim  
5 20, wherein the environment data includes an address of the server and time for transferring the measurement information data.

22. The on-line healthcare system as claimed in claim  
10 21, wherein the environment data further includes an emergency address of the server or an address of an emergency server for transferring the measurement information data if an analysis result of the biological measurement data measured by the portable measurement unit  
15 determines that an emergency occurs.

23. The on-line healthcare system as claimed in claim  
20 20, wherein the environment data is remotely established and modified through information transferred from the server.

24. The on-line healthcare system as claimed in claim  
13 or 19, wherein, when transferring information, at least one of a parity check, an error correction code, a convolutional code, or a concatenated code is used in order  
25 to determine whether or not errors occur while transferring the information.

25. The on-line healthcare system as claimed in claim 13 or 19, wherein the first communication port and the second communication port have RS232C ports or USB ports attached thereto, so that the portable measurement unit is  
5 coupled with the cradle.

26. The on-line healthcare system as claimed in claim 13 or 19, wherein the first communication port and the second communication port have concavo-convex electrodes  
10 attached thereto, so that the portable measurement unit is coupled with the cradle.

27. The on-line healthcare system as claimed in claim 13 or 19, wherein springs are aligned around the first  
15 communication port in such a manner that the first communication port is exposed only when the portable measurement unit is coupled with the cradle, so the portable measurement unit is coupled with the cradle.

20 28. The on-line healthcare system as claimed in claim 13 or 19, wherein the first and the second communication ports have coils attached thereto, so that the portable measurement unit is coupled with the cradle by using an electromagnetic induction method without allowing the first  
25 communication port to make contact with the second communication port.

29. The on-line healthcare system as claimed in claim 13 or 19, wherein each of the first and second communication modules includes at least one of a wired communication port used for wired communication, an RF module used for wireless communication, and an infrared communication unit used for infrared communication.

30. The on-line healthcare system as claimed in claim 1, wherein the measurement information data temporarily stored in the portable measurement unit are delivered to the cradle when the portable measurement unit is coupled with the cradle.

31. The on-line healthcare system as claimed in claim 1, wherein when the portable measurement unit is coupled with the cradle, the portable measurement unit is supplied with power from the cradle or charges a battery accommodated in the portable measurement unit.

32. The on-line healthcare system as claimed in claim 30 or 31, wherein coupling of the portable measurement unit and the cradle is checked through at least one of a method of pressing a mechanical switch included in the cradle and a method of performing electric check by inspecting communication by a predetermined time interval.

33. The on-line healthcare system as claimed in claim



1, wherein the measurement information data are  
automatically transferred after a predetermined time lapses,  
and the measurement information data are manually  
transferred by a user when the measurement information data  
5 are transmitted or received.

34. An on-line healthcare method by using a domestic  
medical device including a portable measurement unit having  
a measurement part, a signal processing part, and a first  
10 communication module of the portable measurement unit, and a  
cradle having a program included therein and a second  
communication port of the cradle, the on-line healthcare  
method comprising the steps of:

(a) allowing the cradle to perform biological  
15 measurement for diagnosing health of a user;

(b) allowing the signal processing module to convert a  
result of the biological measurement into biological  
measurement data;

(c) determining whether or not an emergency occurs  
20 according to an analysis result of the biological  
measurement data measured by the portable measurement unit;

(d) transferring the measurement information data  
including a part of the biological measurement data to the  
cradle by using the second communication module of the  
25 cradle, the first communication module of the portable  
measurement unit, and the program included in the cradle,  
the cradle being automatically operated when the portable

measuring unit makes contact with the cradle, if step (c) determines that no emergency occurs; and

(e) transferring the measurement information data received by the cradle to the server by using the program included in the cradle and the second communication module of the cradle.

35. The on-line healthcare method as claimed in claim 34, further comprising the step of (f) transferring the measurement information data received by the server to a medical center or a communication terminal.

36. The on-line healthcare method as claimed in claim 34, further comprising the steps of:

(d1) transferring an emergency signal to the cradle by wireless method by using the first communication module of the portable measurement unit, the second communication module of the cradle, the program stored in the cradle, the cradle being automatically operated when the portable measurement unit is contacted with the cradle, if step (c) determines that an emergency occurs; and

(d2) transferring the emergency signal received by the cradle to the server or an emergency server through the second communication module of the cradle.

37. The on-line healthcare method as claimed in claim 34, further comprising the step of (d3) wirelessly

transferring an emergency signal to the server or an emergency server through the first communication module of the portable measurement unit if step (c) determines that an emergency occurs.

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38. The on-line healthcare method as claimed in claim 36 or 37, further comprising the step of (d4) transferring the emergency signal received by the server or the emergency server to a medical center or a communication terminal.

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39. The on-line healthcare method as claimed in claim 38, further comprising the steps of:

(g1) allowing the medical center to transfer diagnosis information to the server or the emergency server; and

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(g2) transferring the diagnosis information received by the server or the emergency server to the portable measurement unit.

40. The on-line healthcare method as claimed in claim 35 or 38, wherein the communication terminal includes a portable telephone, a personal digital assistant (PDA), and a personal computer.

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41. The on-line healthcare method as claimed in claim 36 or 37, wherein data transferred together with the emergency signal includes at least one of an ID of the portable measurement unit and an ID of the cradle.

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42. The on-line healthcare method as claimed in claim 41, wherein the data transferred together with the emergency signal includes at least one of a flag for indicating an emergency situation, situation occurrence time, and related measurement data.

43. The on-line healthcare method as claimed in claim 36 or 37, wherein the emergency signal is automatically transmitted by confirming a position of the portable measurement unit through a caller identification if the portable measurement unit or the cradle tries to perform call-connection to an emergency address of the server or an address of the emergency server.

44. The on-line healthcare method as claimed in claim 36 or 37, wherein the portable measurement unit transmits the emergency signal by using short messages.

45. The on-line healthcare method as claimed in claim 34, further comprising the steps of:

(g) allowing the medical center to transmit diagnosis information to the server or the emergency server;

(h) transferring the diagnosis information received by the server or the emergency server to the cradle; and

(i) transferring the diagnosis information received by the cradle to the portable measurement unit.

46. The on-line healthcare method as claimed in any one of claims 36, 37, or 45, wherein the cradle makes communication with the server or the emergency server on a basis of dual tone multi-frequency (DTMF).

47. The on-line healthcare method as claimed in claim 34, wherein the biological measurement includes at least one selected from the group consisting of blood sugar measurement, pulse measurement, blood pressure measurement, body fat analysis, respiration measurement, electrocardiogram measurement, SpO<sub>2</sub> measurement, brain wave measurement, blood analysis, and urine analysis.

48. The on-line healthcare method as claimed in claim 34, wherein the measurement information data includes at least a part or all of the biological measurement data, a measurement time of the biological measurement data, an ID of the portable measurement unit, and an ID of a user.

49. The on-line healthcare method as claimed in claim 34, wherein the portable measurement unit includes a first connection unit connected to the cradle, a first central processing unit for storing, analyzing, or processing data, and/or an interface part for displaying data input or data output.

50. The on-line healthcare method as claimed in claim 49, wherein the data includes at least one selected from the group consisting of the measurement information data, indication data for indicating whether or not new data exist, a range indication data for indicating range of the new data, and error data.

51. The on-line healthcare method as claimed in claim 50, wherein the data further includes an emergency address of a server or an address of an emergency server allowing the portable measurement unit to directly transfer an emergency signal in a case of an emergency.

52. The on-line healthcare method as claimed in claim 34, wherein the cradle includes a second connection unit connected to the portable measurement unit or the server and/or a second central processing unit for processing, analyzing, or storing data.

53. The on-line healthcare method as claimed in claim 52, wherein the data includes at least one selected from the group consisting of the measurement information data, environment data, indication data for indicating whether or not new data exist, range indication data for indicating a range of the new data, and error data.

54. The on-line healthcare method as claimed in claim

53, wherein the environment data includes a general address of the server and time for transferring the measurement information data.

5           55. The on-line healthcare method as claimed in claim  
54, wherein the environment data further includes an  
emergency address of the server or an address of an  
emergency server for transferring the measurement  
information data if an analysis result of the biological  
10 measurement data measured by the portable measurement unit  
determines that an emergency occurs.

56. The on-line healthcare method as claimed in claim  
53, wherein the environment data can be remotely established  
15 and modified through information transferred from the server.

57. The on-line healthcare method as claimed in any  
one of claims 36, 37, or 45, wherein, when transferring  
20 information by using the first communication module of the  
portable measuring unit and the second communication module  
of the cradle, at least one of a parity check, an error  
correction code, a convolutional code, or a concatenated  
code is used in order to determine whether or not errors  
25 occur while transferring the information.

58. The on-line healthcare method as claimed in claim

34, wherein the measurement information data temporarily stored in the portable measurement unit are delivered to the cradle when the portable measurement unit is coupled with the cradle.

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59. The on-line healthcare method as claimed in claim 34, wherein when the portable measurement unit is coupled with the cradle, the program included in the cradle includes a program of automatically transmitting/receiving the measurement information data and a program of automatically trying connection of the server and the cradle at time predetermined by the program included in the cradle or right after the portable measurement unit is contacted with the cradle.

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60. The on-line healthcare method as claimed in claim 34, wherein the server is administrated in such a manner that a distribution server firstly receives the measurement information data from the cradle and secondly transfers the measurement information data to a central server.

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61. The on-line healthcare method as claimed in claim 34, wherein the measurement information data are automatically transferred after a predetermined time lapses, and the measurement information data are manually transferred by a user when the measurement information data are transmitted or received.

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62. An on-line healthcare method by using a domestic medical device including a portable measurement unit having a measurement part, a signal processing part and a first communication module of the portable measurement unit, and a cradle having a program included therein and a second communication port of the cradle, the on-line healthcare method comprising the steps of:

(a) allowing the cradle to perform biological measurement for diagnosing health of a user;

(b) allowing the signal processing module to convert a result of the biological measurement into biological measurement data;

(c) transferring the measurement information data including a portion of the biological measurement data to the cradle by using the first communication module of the portable measurement unit, the second communication module of the cradle, and the program included in the cradle, the cradle being automatically operated when the portable measuring unit is contacted with the cradle; and

(d) transferring the measurement information data received by the cradle to the server by using the program included in the cradle and the second communication module of the cradle.

63. The on-line healthcare method as claimed in claim 62, further comprising a step of (e) transferring the

measurement information data received by the server to a medical center or a communication terminal.

64. The on-line healthcare method as claimed in claim  
5 63, further comprising the steps of:

(f) allowing the medical center to transmit diagnosis information to the server;

(g) transferring the diagnosis information to the cradle; and

10 (h) transferring the diagnosis information received by the mounting server to the portable measurement unit.